Results of Testing

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Cereclor S52®	Not available	EECTOX Mollusk chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Mytilus edulis (mussels)	flow-through, 60 days	0.22, 3.9 mg/L (measured)	50	There were no mortalities of the test animals exposed to the test material (Cereclor S52). A slight decrease in for consumption (filtration) at the higher concentration level was noted.	
Cereclor S52®	Not available		Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Rainbow trout	flow-through, 60 days	1.0, 1.05, 4.5 mg/L (measured)	30	The test material (Cereclor S52) was not toxic to the tes animals. There were no sub-lethal or behavioral effects observed.	
Cereclor S52®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rabbits	oral (gavage), day 6- 27 of gestation	10, 30, 100 mg/kg/d	16 pregnant females		48 FR 20132; 5/4/83 OTS0507252
Cereclor S52®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (gavage), day 6- 19 of gestation	500, 2000, 5000 mg/kg/d	25 pregnant females	Test animals exposed to the test material (Cereclor S52) 5000 mg/kg/day exhibited an increased incidence of wet matted and yellow stained haircoat in the anogenital area and soft stool. There were no dose-related differences in mean maternal weight gain, mean uterus weight, and fets malformations when compared to the controls.	7/26/84 OTS0507334
Cereclor S52®	Not available	HESTOX Subchronic study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (dietary), 13 wks	10, 100, 625 mg/kg/d	15 male; 15 female	exhibited a slight decrease in body weight gain at 625	49 FR 44124; 11/2/84 OTS0507338
Chlorowax 40®	Not available	EECTOX Chronic fish toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Rainbow trout	flow-through, 60 days	0.97, 1.0, 4.0 mg/L (measured)	30	The test material (Chlorowax 40) was not toxic to the te animals. There were no sub-lethal or behavioral effects observed.	
Chlorowax 40®	Not available	EECTOX Mollusk chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Mytilus edulis (mussels)	flow-through, 60 days	0.12, 2.18 mg/L (measured)	50	There were no mortalities of the test animals exposed to the test material (Chlorowax 40). A slight decrease in food consumption (filtration) at the higher concentration level was noted.	11/25/83

G022 Chlorinated Paraffins

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Chlorinated Paraffins: C23, 43% ¹	Not available	HECTOXCARC Carcinogenicity study	National Toxicology Program (NTP)	F344/N rats	gavage, 5x/wk for 103 weeks	0, 875, 3750 mg/kg (male); 0, 100, 300, 900 mg/kg (female)	50 male 50 female	No evidence of carcinogenicity in male rats at either dose level. Equivocal evidence of carcinogenicity in female rats as shown by an increased incidence of adrenal gland medullary pheochromocytomas.	1986, NTIS
Chlorinated Paraffins: C23, 43%	Not available	HECTOXCARC Carcinogenicity study	NTP	B6C3F ₁ mice	gavage, 5x/wk for 103 weeks	0, 2500, 5000 mg/kg	50 male 50 female	shown by an increased incidence of malignant	NTP TR-305, May 1986, NTIS PB86248093/AS
Chlorowax 40°	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rabbits	oral (gavage), day 6- 27 of gestation	500, 2000, 5000 mg/kg/day	unreported number of pregnant females	Results showed that 3 test animals aborted with the test material (Chlorowax 40), 1 at 2000, and 2 at 5000 mg/kg/day. In the high dose group, there was a slight increase in mean post-implantation loss and a slight decrease in the mean number of viable fetuses when compared to the control. There were no treatment-relate effects on mean maternal body weight gain observed at any dose level.	3/23/83 OTS0507250
Chlorowax 40®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rat		0, 500, 2000, 5000 mg/kg/d	25 mated females	One high-dose female died. No evidence of teratogenicit was noted at any treatment level, nor of embryotoxicity fetotoxicity.	
Chlorowax 40®	Not available	HESTOX Subchronic study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats, mice	oral (gavage), 1x/d; 5 d/wk; 13 wks	235, 469, 938, 1875, 3750 mg/kg (rats) 469, 938, 1875, 3750, 7500 mg/kg (mice)	10 male; 10 female	The test material (Chlorowax 40) produced a yellow discoloration of the ingesta in the small intestines of the rats. Scattered white foci were observed in the livers of small number of female rats. Hepatic lesions were noted high dose (3750 mg/kg) female rats. In mice, there were no treatment-related or dose-related lesions caused by the test material. The test material appeared to be non-toxic both rats and mice.	OTS0507336 in
Chlorowax 500C®	Not available	EEATOX Chironomid sedimentoxicity		Chironomus tentans (midges)	static, 48 hr	18-162 μg/L	20 (5/replicate)	solubility.	48 FR 53159; 11/25/83 OTS0507261
Chlorowax 500C®	Not available	EEATOX Mysid shrimp acute toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	mysid shrimp	flow-through, 96 hr	14.9 - 84.4 μg/L (mear measured)	20 (5/replicate)	The 96-hour LC ₅₀ was 14.1 μg/L.	49 FR 5187; 2/10/84 OTS0507326

 $^{^1 \}text{Commercial-grade material similar to Clorowax } 40 \text{C}^{\circledR}$ without added stabilizers.

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Chlorowax 500C®	Not available	EEATOX Algae acute toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Skeletonema costatum (marine alga)	static, 10 days	4.5, 6.7, 12.1, 19.6, 43.1, 69.8 μg/L (measured)	Not applicable	decrease in the growth rate of the test species at	48 FR 53159; 11/25/83 OTS0507260
Chlorowax 500C®	Not available	EEATOX Algae acute toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Selenastrum capricornutu m (green alga)	10 days	0.18, 0.32, 0.56, 1.0, 1.8, 3.2 mg/L (nominal)	Not applicable	The test material (Chlorowax 500C) had an EC $_{50}$ (population growth) value (and 95% confidence interval) of 1.31 mg/L (0.88 to 4.06 mg/L).	48 FR 53159; 11/25/83 OTS0507258
Chlorowax 500C®	Not available	EEATOX Daphnid acute toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Daphnia magna	static, 48 hr	11 to 380 µg/L (mean measured)	20 (5/replicate)	The 48-hour EC $_{50}$ (immobilization) was 530 μ g/L. The test substance caused the daphnids to float on or near the surface at measured concentrations of 75 μ g/L.	48 FR 53159; 11/25/83 OTS0507330
Chlorowax 500C®	Not available	EEBIOC Bioconcentration study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	mussels	flow-through, 147 days	2.35, 10.1 μg/L (mean measured)	130	The test material (Chlorowax 500C) at the higher concentration level killed 33% of the original test animals during the exposure period. At the lower concentration level, 7% of the original test animals died The BCFs for the whole test animal were 40.9 x 10³ (hi concentration) and 24.8 x 10³ (lower concentration).	49 FR 5187; 2/10/84 OTS0507328 gh
Chlorowax 500C®	Not available	EEBIOC Bioconcentration study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Rainbow trout	flow-through, 168 days	3.1, 14.3 μ g/L (mean measured)	100		49 FR 5187; 2/10/84 OTS0507327
Chlorowax 500C®	Not available	EECLIF Fish early life stage study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Sheepshead minnow	flow-through, 28 days	2.4, 4.1, 6.4, 22.1, 54. μg/L (measured)	\$40 (5/replicate)	The test material (Chlorowax 500C) did not cause any significant effects on hatchability of embryos or on survival of larvae compared to the controls. The no-observed-effect concentration was 54.8 µg/L.	49 FR 5187; 2/10/84 OTS0507320
Chlorowax 500C®	Not available	EECTOX Mollusk chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Mytilus edulis (mussels)	flow-through, 60 days	0.071, 0.13, 0.93 mg/I (measured)	.50	The LC_{50} (and 95% confidence level) for the test materia (Chlorowax 500C) was 0.074 mg/L (0.068 to 0.081 mg/L).	48 FR 53159; 11/25/83 OTS0507258
Chlorowax 500C®	Not available	EECTOX Chironomid chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Chironomus tentans (midges)	49 days	61-394 μg/L	100 (25/replicate)	produced no adults at concentration levels of 121 and	48 FR 53159; 11/25/83 OTS0507261
Chlorowax 500C®	Not available	EECTOX Mysid shrimp chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	mysid shrimp	flow-through, 28 days	0.6 to 7.3 µg/L (mean measured)	20 (10/replicate)	No effects were noted on survival, sexual maturation, reproduction, or final size at any treatment level. The maximum acceptable toxicant concentration (MATC) wa >7.3 µg/L.	49 FR 5187; 2/10/84 OTS0507326 s

G022 Chlorinated Paraffins

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Chlorowax 500C®	Not available	EECTOX Chronic fish toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Rainbow trout	flow-through, 60 days	0.34, 1.07, 3.05 mg/L (measured)	30	(and 95% confidence level) of 0.34 mg/L (0.23 to 0.50	48 FR 53159; 11/25/83 OTS0507258
Chlorowax 500C®	Not available	EECTOX Daphnid chronic toxicity	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Daphnia magna	flow-through, 21 days	3.2, 5.6, 10, 18 µg/L (nominal)	20 (10/replicate)	(Chlorowax 500C) had total mortalities at measured	48 FR 53159; 11/25/83 OTS0507330
Chlorowax 500C®	Not available	EFBDEG Anaerobic biodegradation/ inhibition	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Not applicable	Digester, anaerobic sewage sludge, 10 days	0.56% to 10% w/w (with respect to digester volatile suspended solids (VS) content)	Not applicable	The toxicity of the test substance to the anaerobic sewag sludge digestion process were assessed by measurement of the degree of inhibition of gas production at various time intervals. The data show that significant (>10%) inhibition of gas production occurred at concentrations of 3.2, 5.6 and 10% (w/w) on VS during the first 3-4 da and continued until day 10 when the experiment was terminated. Concentrations of 0.56, 1.0 and 1.8% (w/w on VS did not significantly affect digest gas production. It was concluded that concentrations >3.2% (w/w) on V may cause transient partial inhibition of gas production. However, recovery of affected microorganisms is likely to be rapid with no long-term effects.	11/25/83 OTS0507328 vs
Chlorowax 500C®	Not available	EFBDEG Inherent Biodegradability	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Not applicable	aerobic, 28 days, 22 EC, 200 mg/L activated sludge	25 and 50 mg of carbon/L	Not applicable	OECD method 203B. No significant biodegradation of chlorinated paraffin occurred under the test conditions. Values of 16.0% and 7.4% of theoretical carbon dioxide	OTS0507259,
Chlorinated Paraffins: C12, 60% ²	Not available	HECTOXCARC Carcinogenicity study	National Toxicology Program (NTP)	F344/N rats	gavage, 5x/wk for 2 yr	0, 312, 625 mg/kg	70 male 70 female		

 $^{^2} Commercial$ -grade material similar to Clorowax $500 C^{\tiny \circledR}$ without added stabilizers.

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Chlorinated Paraffins: C12, 60%		HECTOXCARC Carcinogenicity study	NTP	B6C3F ₁ mice	gavage, 5x/wk for 2 yr	0, 125, 250 mg/kg	50 male 50 female	Clear evidence of carginogenicity based on increased incidence of hepatocellular adenomas and of adenomas or carcinomas (combined) in male and female mice and increased incidences of adenomas or adenomas and carcinomas (combined) of thyroid gland follicular cells it female rats.	NTP TR-308, May 1986, NTIS PB86248101/AS
Chlorowax 500C®	Not available	HEGTOXTRFM Transformation study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	mice	in vitro	31.25, 62.5, 125, 250, 500 µg/mL (non-activation); 6.25, 12.5, 25, 50, 100 µg/mL (activation)	•	The LC_{50} of the test material (Chlorowax 500C) was 44 μ g/mL in the absence of metabolic activation and 58 μ g/mL in the presence of metabolic activation. In both cases there were increased transformed colonies.	12/1/82
Chlorowax 500C®		HEGTOXCHRM Rodent dominant lethal assay	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (gavage) in corn oil, 5 days	0, 250, 750, 2000 mg/kg/d	15 males	No evidence of mutagenicity was noted by dominant lethal assay.	49 FR 5187; 2/10/84 OTS0507331
Chlorowax 500C®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (gavage), day 6- 19 of gestation	0, 100, 500, 2000 mg/kg/d	15 pregnant females	There were no treatment-related effects in test animals th received 100 mg/kg/day of the test material (Chlorowax 500C). At 500 and 2000 mg/kg/day, observations included yellow and brown staining of the anogenital haircoat, soft stool, red and brown staining in the nasal region, decreased activity, oily haircoats, emaciation, an excessive salivation. At 2000 mg/kg/day, there was a statistically significant increase in the number of postimplantation losses, and a decrease in the number of viable fetuses. Missing or shortened digits were observed in 19 fetuses from 3 out of 15 litters examined.	3/23/83 OTS0507250
Chlorowax 500C®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rabbits	oral (gavage), day 6- 27 of gestation	10, 30, 100 mg/kg/d	unreported number of pregnant females	The appearance and behavior of the test animals was unaffected by treatment with the test material (Chlorowa 500C). The predominant observations were hair loss or the ventral neck and thorax and reduced amounts of fecal matter (which occurred in all groups). Embryotoxicity a 100 mg/kg/day was evident in 2 test animals with early whole litter reabsorption. The mean numbers of corpora lutea, total implantations, viable fetuses, mean fetal bod weight, and fetal sex distribution were not statistically significant when compared to the controls.	OTS0507252 t
Chlorowax 500C®	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Mallard duck	oral (dietary), 22 wks	28, 166, 1000 ppm	20 male; 20 female	No treatment-related effects from the test material (Chlorowax 500C) were observed in adult test animals of survival, physical condition, body weight, and food consumption. There was a slight decrease as compared tontrols from exposure to 1000 ppm in eggshell thickne and 14-day viability. There were no differences found in eggshell thickness or viability at 28 and 166 ppm. In hatchlings, there were no treatment-related effects observed in any of the dose levels tested. The no-observable-effect dietary concentration was 166 ppm.	OTS0507340

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Chlorowax 500C®	Not available	HESTOX Subchronic study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats, mice	oral (gavage), 1x/d; 5 d/wk; 13 wks	625, 1250, 2500, 5000 mg/kg (rats) 125, 250, 500, 1000, 2000 mg/kg (mice)	10 male; 10 female	2500 and 5000 mg/kg exhibited decreased weight gain.	OTS0507337
Chlorowax 500C®	Not available	HESTOX Subchronic study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (dietary), 13 wks	10, 100, 625 mg/kg/d	15 male; 15 female	Males exposed to 625 mg/kg/day of the test material (Chlorowax 500C) exhibited a slight decrease in body weight gain and food consumption. An increase in wate consumption was observed in both males and females. Slight reductions in hemoglobin and hematocrit were exhibited among high dosed test animals of both sexes. At 100 and 625 mg/kg/day, there were slight changes in total protein, cholesterol, and glucose levels, increased liver weights, and hepatocellular hypertrophy.	49 FR 44124; 11/2/84 OTS0507333
Electrofine S70®	Not available		Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Rainbow trout	flow-through, 60 days	1.0, 2.1, 3.8 mg/L (measured)	30	The test material (Electrofine S70) was not toxic to the test animals at any of the concentrations tested. There were no mortalities or behavioral changes noted.	48 FR 53159; 11/25/83 OTS0507258
Electrofine S70®	Not available		Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	Mytilus edulis (mussels)	flow-through, 60 days	0.46, 1.33 mg/L (measured)	Not specified	There were no mortalities to the test animals exposed to the test material (Electrofine S70). Feeding (filtration) activity was slightly reduced at the higher concentration but normal at the lower concentration.	11/25/83
Electrofine S70®	Not available	HECTOXTRFM Transformation study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	mice	in vitro	625, 1250, 2500,5000,10000 μg/mL (non- activation); 6.25, 12.5, 25, 50, 100 μg/mL (activation)	Not specified	The test material (Electrofine S70) produced an LC $_{50}$ of $\mu g/mL$ in the absence of metabolic activation and 294 $\mu g/mL$ in the presence of metabolic activation. In both cases, there were large dose-related increases in transformed colonies	12/1/82
Electrofine S70®	Not available	Mammalian bone marrow chromosomal	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (gavage), 1x/d, 5 days	0, 500, 1500, 5000 mg/kg/d	8 males	No evidence of increased chromosomal aberrations were noted at any treatment level.	49 FR 5187; 2/10/84 OTS0507331
Electrofine S70 [®]	Not available	HERTOXTERA Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)	rats	oral (gavage), day 6- 19 of gestation	500, 2000, 5000 mg/kg/d	25 pregnant females	There were no dose-related differences between test animals exposed to the test material (Electrofine S70) in body weight, body weight gain, gestational period, fetal malformations, and development when compared to the controls.	

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Electrofine S70®		Developmental study	Non-TSCA Protocol/Guideline (see docket# OPTS- 42004)		oral (gavage), day 6- 27 of gestation		females	Exposure to the test material (Electrofine S70) caused not treatment-related effects in maternal appearance, behavior body weight gain, or in the occurrence of genetic and developmental variations in the treatment groups compared to the controls. No evidence of teratogenicity was noted.	11/25/83 OTS0507257